



ADDENDUM NO. 1

Dated: June 25, 2014

ELIZABETH RIVER TRAIL – PHASE 3A VDOT Project: EN00-122-138, C506 (UPC 977727)

Except as may be otherwise described, bidding requirements, materials, and workmanship for the work described herein shall conform to all requirements of the original Contract Documents. The following Addendum to the drawings and specifications are made a part of the project and takes precedence over the section of the specifications, in part, and/or drawings, as originally written.

This Addendum consists of twelve (12) pages and four (4) drawings.

ITEM NO. DESCRIPTION

1. SPECIFICATIONS; Invitation to Bid; Page 1

First Paragraph Delete: 2:00 p.m., Tuesday, July 8, 2014

Replace with: 2:00 p.m., Tuesday, July 22, 2014

2. SPECIFICATIONS; Form of Bid; Page 1.3-1

Change: 2:00 p.m., Tuesday, July 8, 2014

Replace with: 2:00 p.m., Tuesday, July 22, 2014

3. SPECIFICATIONS; Agreement; Page 1.4-1

Second Paragraph Delete: July 8, 2014

Replace with: July 22, 2014

4. TECHNICAL SPECIFICATIONS; Section 06 13 33, Timberwork

Remove: Section 06 13 33 in its entirety.

Replace with: Section 06 13 33 (Addendum No. 1)

5. TECHNICAL SPECIFICATIONS; Section 31 62 19, Timber Piles

Remove: Section 31 62 19 in its entirety.

Replace with: Section 31 62 19 (Addendum No. 1)



City of Norfolk

6. DRAWINGS

Remove: Sheets S-1, S-3, S-4 and S-5

Replace with: Sheets S-1, S-3, S-4 and S-5 of this Addendum.

7. QUESTIONS AND RESPONSES

Q1. Are Grade Stamps required on surfaced two edges material?

R1. Mill certificates may be substituted for grade stamps provided the mill's Southern Pine Inspection Bureau's certification is current and evidence of same accompanies material submittals.

Receipt of this addendum shall be acknowledged on page 1.3-1 of the Bid Form

Prepared by: Ali Mahan, URS Corporation

Issued by: Toni Fralich
Contract Monitoring Specialist

SECTION 06 13 33

TIMBERWORK

PART I - GENERAL

1.1 REFERENCES:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

1. AWP A U1: Use Category System, User Specifications for Treated Wood
2. AWP A M4: Care of Preservative-Treated Wood Products
3. AWP A M6: Brands Used on Forest Products
4. AWP A P5: Waterborne Preservatives

ASTM INTERNATIONAL (ASTM)

1. ASTM A 123 /A 123M: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. ASTM A 153/A 153M: Zinc Coating (Hot-Dip) on Iron and Steel Hardware
3. ASTM A 307: Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength

1.2 SUBMITTALS:

The following shall be submitted:

- A. SD-06 Test Reports
1. Timber preservative inspection
 2. Delivery inspection list
- B. SD-07 Certificates
1. MSDS and CIS
 2. Wood, Timber Materials Mill Certificates
 3. Mill Inspection Agency Certification

1.3 DELIVERY AND STORAGE

- A. Open-stack timber and lumber material on skids at least 12 inches above ground, in a manner that will prevent warping and allow shedding of water. Close-stack treated timber and lumber material in a manner that will prevent long timbers or preframed material from sagging or becoming crooked. Keep ground under and within 5 feet of such piles free of weeds, rubbish, and combustible materials. Protect materials from weather. Handle treated timber with ropes or chain slings without dropping, breaking outer fibers, bruising, or penetrating surface with tools. Do not use cant dogs, peaveys, hooks, or pike poles. Protect timber and hardware from damage.

1.4 QUALITY ASSURANCE

- A. MSDS and CIS
 - 1. Provide Material Safety Data Sheets (MSDS) and Consumer Information Sheets (CIS) associated with timber pile preservative treatment. Contractor shall comply with all safety precautions indicated on MSDS and CIS.
- B. Timber Preservative Inspection
 - 1. Submit the inspection report of an independent inspection agency, for approval by the Owner's Representative that offered products complying with applicable AWPAs Standards. Identify treatment on each piece by the quality mark of an agency accredited by the Board of Review of the American Lumber Standard Committee.
- C. Delivery Inspection List:
 - 1. Field inspect and submit a verification list of each treated timber member and each strapped bundle of treated lumber indicating the wording and lettering of the quality control markings, the species and the condition of the wood. Do not incorporate materials damaged in transport from plant to site. Inspect all preservative-treated wood, visually to ensure there are no excessive residual materials or preservative deposits. Material shall be clean and dry or it will be rejected due to environmental concerns.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Lumber and Timbers
 - 1. Solid Sawn
 - a. Provide solid sawn lumber and timbers of stress-rated Southern Pine or with a stress rating as indicated, and identified by the grade mark of Southern Pine Inspection Bureau using the specific grading requirements as covering the species used. Use commercial grade lumber for secondary members such as decking and railings.
 - 2. Preservative Treatment

- a. Fabricate lumber and timbers before preservative treatment. Each piece of treated lumber or timber shall be branded, by the producer, in accordance with AWP A M6. Treat wood as described on contract documents.
- B. Hardware
 - 1. Bolts with necessary nuts and washers, timber connectors, drift pins, dowels, nails, screws, spikes, O.G. washers, and other fastenings. Bolts and nuts shall be galvanized in accordance with ASTM A153. Provide plate or cut washers where indicated. Provide bolts with washers under nut and head. Provide timber connectors and other metal fastenings of type and size shown.
- D. Zinc-Coating
 - 1. Galvanized steel specified or indicated by the hot-dip process in accordance with ASTM A 123/A 123M or ASTM A 153/A 153M, as applicable.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. Cut, bevel, and face timbers prior to plant preservative treatment. Provide protective equipment for personnel fabricating, field treating, or handling materials treated with water-borne salts. Refer to paragraph entitled "MSDS and CIS."
- B. Framing
 - 1. Cut and frame lumber and timber so that joints will fit over contact surface. Secure timbers and piles in alignment. Open joints are unacceptable. Bore holes for drift pins and dowels with a bit 1/16 inch less in diameter than the pin or dowel. Bore holes for truss rods or bolts with a bit 1/16 inch larger in diameter than rod or bolt. Bore holes for lag screws in two parts. Make lead hole for shank the same diameter as shank. Make lead hole for the threaded portion approximately two-thirds of the shank diameter. Bore holes in small timbers for boat or wire spikes with a bit of the same diameter or smallest dimension of the spike to prevent splitting. Counterbore for countersinking wherever smooth faces are indicated or specified.
- C. Pilecaps/Clamps
 - 1. Prior to placing caps, prepare tops of posts or piles as indicated on drawings. Place timber caps to secure bearing over tops of supporting posts or piles and to secure even alignment of their ends. Secure caps as indicated on drawings.
- D. Stringers
 - 1. Place crown up and, if possible, the better edge of deck stringers down. Tops of stringers shall not vary from a plane more than will permit bearing of the floor on stringers. Butt-joint and splice outside stringers, but lap interior stringers to take bearing over full width of cap or floor beam at each end. Toenail or drift bolt

stringers as indicated. Stringers may be of sufficient length to cover two spans, except on sharp horizontal curves. Between stringers, frame and toenail cross-bridging or solid-bridging at each end with at least two nails for cross-bridging and four nails for solid-bridging. Make size and spacing of bridging as indicated.

E. Decking

1. Make decking of a single thickness of plank supported by stringers or joists. Unless otherwise indicated, lay plank with heart side down and with tight joints. Screw each plank to each joist or nailing strip with at least two #12 screws. Provide screws at least 3 inches greater than the thickness of plank. Place screws at least 2 ½ inches from edges of the plank. Cut ends of planks parallel to center line of pier. Grade planks as to thickness and lay so that adjacent planks vary less than 1/16 inch.

F. Railing/Guard

1. Provide railing/guard as indicated on drawings.

G. Fastening

1. Vertical bolts shall have nuts on the lower end. Where bolts are used to fasten timber to timber, timber to concrete, or timber to steel, bolt members together when they are installed and retighten immediately prior to final acceptance of contract. Provide bolts having sufficient additional threading to provide at least 3/8 inch per foot thickness of timber for future retightening.

3.2 FIELD TREATMENT

A. Timberwork

1. Field treat cuts, bevels, notches, refacing and abrasions made in the field in treated piles or timbers in accordance with AWPA M4, MSDS and CIS. Wood preservatives are restricted use pesticides and shall be applied according to applicable standards. Trim cuts and abrasions before field treatment. Paint depressions or openings around bolt holes, joints, or gaps including recesses formed by counterboring, with preservative treatment used for piles or timber.

B. Galvanized Surfaces

1. Repair and recoat zinc coating which has been field or shop cut, burned by welding, abraded, or otherwise damaged to such an extent as to expose the base metal. Thoroughly clean the damaged areas by wire brushing and remove traces of welding flux and loose or cracked zinc coating prior to painting. Paint cleaned area with two coats of zinc oxide-zinc dust paint conforming to MIL-P-21035. Compound paint with a suitable vehicle in a ratio of one part zinc oxide to four parts zinc dust weight.

-END OF SECTION-

SECTION 31 62 19

TIMBER PILES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wood piles.
 - 2. Preservative treatment.
- B. Related Sections:
 - 1. Section 06 13 33 – Pier Timberwork.

1.2 MEASUREMENT AND PAYMENT

- A. Test Piles:
 - 1. Test piles will be measured in linear feet from the tip to the head of the pile . The price shall include furnishing labor, materials, tools, equipment, and incidentals required for furnishing and driving test piles. Work includes furnishing and driving test piles, jetting, spudding, predrilling, disposing of pile cutoffs, redriving, and removal and replacement of damaged, mislocated, or otherwise rejected piles. Base bids on the number of test piles with pile length from tip to head of the pile as indicated on Contract Drawing. When a pile used in a driving test is incorporated in the completed structure at the required location, no separate measurement of the pile will be made for payment. This price shall include performing the test; furnishing, removing, and disposing of piles; and restoring the pile hole when the pile is not incorporated in the structure.
- B. Production Piles:
 - 1. For production piles, payment will be measured in linear feet from the tip to cutoff. The price shall include furnishing labor, materials, tools, equipment, and incidentals required for furnishing and driving piles. Work includes furnishing and driving piles, jetting, spudding, predrilling, disposing of pile cutoffs, redriving, and removal and replacement of damaged, mislocated, or otherwise rejected piles. Base bids on the number of piles with pile length from tip to cutoff, as indicated on Contract Drawing, and on total length of piling from tip to cutoff. From data obtained as a result of driving the test piles specified above, the owner will determine and list for the Contractor the calculated minimum pile tip elevations, the driving resistance for piles, or both. The information will be given to the Contractor no later than 14 calendar days after receipt of complete test pile data. The list shall be used as the basis for ordering piles. The Contractor shall not order production piles prior to receipt of the above information from the Owner. If the owner requires an increase or a decrease in the linear footage of piles furnished and installed, the contract price will be adjusted in accordance with the applicable provisions of the Contract.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM D25 - Standard Specification for Round Timber Piles.

2. ASTM D245 - Standard Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber.
 3. ASTM D1760 - Standard Specification for Pressure Treatment of Timber Products.
- B. American Wood-Preservers' Association:
1. AWWA U1, Use Category System User Specifications for Treated Wood.
 2. AWWA M4 - Standard for the Care of Preservative-Treated Wood Products.

1.4 PERFORMANCE REQUIREMENTS

- A. Drive piles as indicated on Drawings and in accordance with Geotechnical Engineer's recommendations.

1.5 SUBMITTALS

- A. Project Record Documents: Accurately record the following:
1. Sizes, lengths, and locations of piles.
 2. Driving Equipment and Sequence of driving.
 3. Pile Caps
 4. Number of blows per foot for entire length of piles and measured set for last 10 blows.
 5. Drilling: Hole diameters, start and tip elevations.
 6. Final tip and head elevations.
 7. Driving force of each hammer blow.
 8. Test Piles and production pile records. Submit pile Driving records with 15 calendar days after completion of driving.

1.6 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.7 PRODUCTS

1.8 MATERIALS

- A. Piles: ASTM D25, southern pine, one piece, non-spliced, friction type.
- B. Treatment: AWWA U1; preservative treated pressure impregnated water-borne preservatives for coastal water piles to a net retention as shown on the drawings.
- C. Dimensions:
1. Length: As indicated on Drawings.
 2. Minimum Butt circumference measured 3 feet from the end: 38 inches.
 3. Minimum Tip Diameter: 7 inches or as specified in ASTM D25.

1.9 SOURCE QUALITY CONTROL

- A. Grade piles in accordance with ASTM D245.

PART 2 EXECUTION

2.1 PREPARATION

- A. Use driving method which will not cause damage to nearby structures.
- B. Protect structures near the Work, from damage.
- C. Prepare to place piles from existing site elevations.

2.2 TEST PILES

- A. Provide test piles conforming to requirements for job piles. Drive test piles in the same manner as specified for job piles. Furnish test piles a minimum of 5 feet longer than length specified for job piles and drive the additional depth, if directed. Drive test piles in locations indicated or as directed. Record driving data.

2.3 INSTALLATION

- A. Protect pile head during driving, with full bearing on pile butt for even distribution of hammer blow.
- B. Deliver hammer blows to central axis of pile.
- C. When driving is interrupted before refusal, drive an additional 12 inches before resuming recording of performance data.
- D. Re-drive piles which have lifted due to driving adjacent piles, or by soil uplift.
- E. Do not damage piles during driving operations.
- F. Cut off tops of piles to elevations indicated and prepare pile top to receive clamps.
- G. Prevent surface damage to treated piles.
- H. Apply preservative to exposed ends of cut-off piles in accordance with AWP M4.
- I. Restrike piles when directed to do so by the Owner, Owner's Representative, or Engineer.
- J. Records: Keep a complete and accurate record of each pile driven. Indicate pile location, deviations from design location, diameter, original length, mudline elevation, tip elevation, cutoff elevation, penetration in blows per foot for entire length of penetration for test piles, penetration in blows per foot for the last 10 feet for job piles, hammer data including rate of operation, make, and size, and unusual pile behavior or circumstances experienced during driving such as re-driving, heaving, weaving, obstructions, jetting, spudding, predrilling, and unanticipated interruptions. Preprinted forms for recording pile driving data are attached below. Make pile driving records available to the Owner at the job site, a minimum of 24 hours after each day of pile driving. Include in the construction records the wood species, preservative type, retention, and producer of installed treated timber.

2.4 ERECTION TOLERANCES

- A. Maximum Variation From Vertical For Plumb Piles: 1 in 48.
- B. Maximum Variation From Design Cut-off Elevation: 3 inches.
- C. Maximum Out-of-Position: 2 inches.

2.5 FIELD QUALITY CONTROL

- A. Test Piles: Same diameter and type as specified for other piling, placed in same manner.
- B. Accepted test piles may be used in the Work.
- C. Unacceptable Piles: Piles that fail tests, are placed out of position, are below cut-off elevations, or are damaged.
- D. Provide additional piles or replace piles to conform to specified requirements.
- E. Provide full time inspection during pile driving. Do not drive piles unless inspector is present.

PILE DRIVING LOG

CONTRACT NO. _____ CONTRACT NAME _____
CONTRACTOR _____ TYPE OF PILE _____
PILE LOCATION _____ PILE SIZE: BUTT/TIP: _____ LENGTH GROUND _____
GROUND ELEVATION _____ CUT OFF ELEVATION _____
PILE TIP ELEVATION _____ VERTICAL (____) BATTER __ ON (____)
SPLICES ELEVATION _____ COMPANY _____

HAMMER: MAKE & MODEL _____ WT. RAM _____
STROKE _____ RAM RATED ENERGY _____
DESCRIPTION & DIMENSIONS OF DRIVING CAP _____
CUSHION MATERIALS & THICKNESS _____

INSPECTOR _____

"DEPTH" COLUMN OF PILE DRIVING RECORD REFERENCED TO:

_____ CUT-OFF ELEVATION
_____ FINISH FLOOR ELEVATION

TIME. START DRIVING _____ FINISH DRIVING _____ DRIVING TIME _____
INTERRUPTIONS (TIME, TIP ELEV. & REASON) _____
JET PRESSURE & ELEVATIONS _____

DRIVING RESISTANCE

DEPTH FT.	NO. OF BLOWS	DEPTH FT.	NO. OF BLOWS	DEPTH FT.	NO. OF BLOWS
0	_____	18	_____	36	_____
1	_____	19	_____	37	_____
2	_____	20	_____	38	_____
3	_____	21	_____	39	_____
4	_____	22	_____	40	_____
5	_____	23	_____	41	_____
6	_____	24	_____	42	_____
7	_____	25	_____	43	_____
8	_____	26	_____	44	_____
9	_____	27	_____	45	_____
10	_____	28	_____	46	_____
11	_____	29	_____	47	_____
12	_____	30	_____	48	_____
13	_____	31	_____	49	_____
14	_____	32	_____	50	_____
15	_____	33	_____	51	_____
16	_____	34	_____	52	_____
17	_____	35	_____	53	_____

SHEET 1 OF 2

PILE DRIVING LOG

54	_____	77	_____	99	_____
55	_____	78	_____	100	_____
56	_____	79	_____	101	_____
57	_____	80	_____	102	_____
58	_____	81	_____	103	_____
59	_____	82	_____	104	_____
60	_____	83	_____	105	_____
61	_____	84	_____	106	_____
62	_____	85	_____	107	_____
63	_____	86	_____	108	_____
64	_____	87	_____	109	_____
65	_____	88	_____	110	_____
66	_____	89	_____	111	_____
67	_____	90	_____	112	_____
68	_____	91	_____	113	_____
69	_____	92	_____	114	_____
70	_____	93	_____	115	_____
71	_____	94	_____	116	_____
72	_____	95	_____	117	_____
73	_____	96	_____	118	_____
74	_____	97	_____	119	_____
75	_____	98	_____	120	_____
76	_____				

DRIVING RESISTANCE IN BLOWS PER INCH FOR LAST FOOT OF PENETRATION:
DEPTH _____ DEPTH _____

1" _____ 2" _____ 3" _____ 4" _____ 5" _____ 6" _____ 7" _____ 8" _____ 9" _____ 10" _____ 11" _____ 12" _____

ELEV. _____ ELEV. _____

REMARKS _____

CUT OFF ELEVATION: FROM DRAWING _____

TIP ELEVATION = GROUND ELEVATION - DRIVEN DEPTH = _____

DRIVEN LENGTH = CUT OFF ELEVATION - TIP ELEVATION = _____

CUT OFF LENGTH = PILE LENGTH - DRIVEN LENGTH = _____

SHEET 2 OF 2

END OF SECTION

TIMBER PILES

31 62 19 - 6

GENERAL NOTES:

1. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (2009 INTERNATIONAL BUILDING CODE WITH VIRGINIA AMENDMENTS), AS EFFECTIVE MARCH 1, 2011 AND AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH VDOT MODIFICATIONS.
2. DESIGN LOADS USED IN THE DESIGN OF THIS STRUCTURE ARE AS FOLLOWS:
- | | |
|---------------------|------------|
| DECK LIVE LOAD | 100 PSF |
| MAINTENANCE VEHICLE | 10,000 LBS |
| WIND DESIGN DATA | 50 PSF |
3. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL FROM THE SITE AND LEGAL DISPOSAL OF DEBRIS GENERATED AS A RESULT OF DEMOLITION AND/ OR CONSTRUCTION ACTIVITIES.
5. THE LOCATION OF EXISTING UTILITIES AND OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS. REFER TO CIVIL DRAWINGS. A MINIMUM OF 72 HOURS PRIOR TO EXCAVATING, "MISS UTILITY" OF VIRGINIA (811) MUST BE CONTACTED.
6. GUARD DESIGNED AS A PEDESTRIAN/ BICYCLE GUARD ONLY AS PER DIRECTION FROM THE OWNER. GUARD IS NOT CRASH RATED AND IS NOT INTENDED AS A VEHICULAR RAILING.
7. ALL MISCELLANEOUS STEEL INCLUDING PLATE AND CONNECTORS SHALL BE GALVANIZED. ALL BOLTS SHALL BE ASTM A307, GALVANIZED. NAILS AND SCREWS SHALL BE GALVANIZED. GALVANIZING SHALL BE HOT-DIPPED IN ACCORDANCE WITH ASTM A123.
8. ALL EXPOSED BOLT ENDS, NUTS AND WASHERS SHALL BE COUNTERBORED (EXPANSION BIT OR HOLE SAW ONLY) WHERE POSSIBLE CONTACT WITH HUMANS MAY OCCUR.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED LICENSES AT HIS EXPENSE AND SHALL WORK WITH OWNER TO COORDINATE INSPECTION OF WORK BY ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING REQUIRED CITY INSPECTIONS.
10. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.

STEEL NOTES

1. STRUCTURAL STEEL FOR THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN".
2. ALL STRUCTURAL STEEL & MISCELLANEOUS STEEL SHALL BE HOT DIPPED GALVANIZED.

CONCRETE NOTES

1. CAST-IN-PLACE CONCRETE FOR THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318) AND COMMENTARY (ACI 318R)".
2. CONCRETE SHALL BE NORMAL WEIGHT AND SHALL OBTAIN 28 DAY COMPRESSIVE STRENGTHS OF 4,000 PSI.
3. ALL REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE ACCURATELY PLACED IN THE POSITIONS SHOWN AND ADEQUATELY TIED AND SUPPORTED BEFORE CONCRETE IS PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES.
4. MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS INDICATED ON THE DRAWINGS SHALL GOVERN WHEN IN CONFLICT WITH ACI 318.
5. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED.
6. REINFORCING MATERIALS SHALL BE EPOXY COATED.

TIMBER NOTES

1. ALL TIMBER CONSTRUCTION SHALL COMPLY WITH NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, 2012 (NDS-2012). ALL STRUCTURAL LUMBER AND TIMBER SHALL BE PLANT CERTIFIED AND GRADED IN ACCORDANCE WITH SOUTHERN PINE INSPECTION BUREAU RULES AND SHALL BE SOUTHERN PINE, KD USED AT 19% MAXIMUM MOISTURE CONTENT. SPECIES FOR ALL LUMBER USED SHALL BE SOUTHERN YELLOW PINE.
- MATERIAL FOR PILE CAPS, CLAMPS, BLOCKING AND BRACES SHALL BE NUMBER 2 OR BETTER.
- MATERIAL FOR STRINGERS, HEADERS, SUB-FRAMING (BELOW DECKING) SHALL BE NUMBER 1.
- MATERIAL FOR DECKING SHALL BE DENSE STANDARD, DENSE SELECT OR DENSE COMMERCIAL DECKING PER SPIB SUPPLEMENT 13, TABLE 5. DECK BOARDS SHALL BE MARINE GRADE, FREE OF HEARTWOOD AND PITH ON ALL FOUR LONGITUDINAL SIDES (PARAGRAPH 508, SPIB RULES)
- MATERIAL FOR POSTS, GUARDS, PICKETS, BALUSTERS RAILS AND ALL MATERIAL ABOVE DECKING SHALL BE NUMBER 1.
- PROVIDE PRESERVATIVE TREATMENTS WITH ALL WOOD PROVIDED. PRESERVATIVE TREATMENTS SHALL CONFORM TO AWP A STANDARD U1. BELOW DECK MATERIALS (PILES, PILE CAPS, STRINGERS, BRACES) SHALL BE TREATED IN ACCORDANCE WITH AWP A STANDARD U1 TO THE REQUIREMENTS OF USE CATEGORY 5B (UC 5B) USING A 2.5 POUND PER CUBIC FOOT RETENTION OF COPPER CHROMATED ARSENATE, (2.5 PCF CCA TYPE C) ALL OTHER MATERIAL SHALL BE TREATED IN ACCORDANCE WITH AWP A STANDARD U1 TO THE REQUIREMENTS OF USE CATEGORY 4B (UC 4B).
- PROVIDE ALL HARDWARE IN MATERIALS AND FINISHES COMPATIBLE WITH WOOD TREATMENTS USED. FIELD TREAT CUTS, BEVELS, NOTCHES, REFACING AND ABRASIONS MADE IN THE FIELD IN TREATED PILES OR TIMBERS IN ACCORDANCE WITH AWP A M4. WOOD PRESERVATIVES ARE RESTRICTED USE PESTICIDES AND SHALL BE APPLIED ACCORDING TO APPLICABLE STANDARDS.
- TRIM CUTS AND ABRASIONS BEFORE FIELD TREATMENT. PAINT DEPRESSIONS OR OPENINGS AROUND BOLT HOLES, JOINTS, OR GAPS INCLUDING RECESSES FORMED BY COUNTERBORING, WITH PRESERVATIVE TREATMENT IN ACCORDANCE WITH AWP A M4, PROTECT CUTS IN PILE OR POST TOPS WITH SEVERAL HEAVY APPLICATIONS OF THE SAME PRESERVATIVE USED TO TREAT THE MATERIAL. ALTERNATE MATERIALS CONFORMING WITH AWP A M4 FOR SPECIFIED USE CATEGORY MAY BE USED.
- PROVIDE SURFACED FOUR SIDES MATERIAL WHERE HUMAN CONTACT WITH THE WOODWORK IS POSSIBLE. STRINGERS, PILE CAPS AND OTHER FRAMING BELOW DECKING SHALL BE SURFACED 2 EDGES (TOP & BOTTOM). SURFACE FOUR SIDES (S4S) IS ALSO ACCEPTABLE.
- PROVIDE EASED EDGES AND CORNERS ON WOOD, EDGE PROTECTION, GUARDS, BALUSTERS, RAILINGS AND ALL OTHER WOODWORK ABOVE DECKING AND WHERE HUMAN CONTACT WITH THE WOODWORK IS POSSIBLE. SAND SMOOTH ALL CHECKS AND OTHER IRREGULARITIES THAT PRESENT A HAZARD TO HUMANS OR AN OPPORTUNITY TO PROVIDE SPLINTERS, PUNCTURES OR SNAG CLOTHING OR SKIN.

- ALL EXPOSED BOLT ENDS SHALL BE CUT FLUSH, GROUND SMOOTH AND COATED WITH A ZINC RICH "COLD GALVANIZING" PAINT.
- 1.
2. TIMBER PILES SHALL BE IN ACCORDANCE WITH ASTM D25 AND PRESSURE TREATED TO A RETENTION OF 2.5 LB/CF OF COPPER CHROMATED ARSENATE (CCA TYPE C) IN ACCORDANCE WITH AWPA U1, WITH WATER BORNE PRESERVATIVE. MINIMUM PILE BUTT CIRCUMFERENCE MEASURED AT 3 FEET FROM THE BUTT END SHALL BE 38 INCHES. ESTIMATED TIP ELEVATION OF PRODUCTION PILES IS -35.00. TEST PILES SHALL BE DRIVEN TO A TIP ELEVATION OF -35.00 FEET AND SHALL HAVE SUFFICIENT LENGTH TO BE DRIVEN TO A TIP ELEVATION OF -40.00. DRIVE TO BEYOND -35.00 WHEN DIRECTED BY OWNER. INDICATOR (TEST) PILES SHALL BE 5' LONGER THAN ESTIMATED LENGTH OF PRODUCTION PILES. RETAP INDICATOR PILES WHEN DIRECTED BY OWNER. RETAPPING WILL OCCUR A MINIMUM OF 72 HOURS AFTER INITIAL DRIVING. PRODUCTION PILE LENGTH IS SUBJECT TO ADJUSTMENT BASED ON THE RESULTS OF THE TEST PILE PROGRAM.
3. JETTING OR SPODDING OF PILES WILL NOT BE ALLOWED UNLESS APPROVED IN WRITING BY THE OWNER.
4. TIMBER PILES SHALL ACHIEVE A MINIMUM SAFE BEARING CAPACITY OF 20 TONS.

ABBREVIATIONS

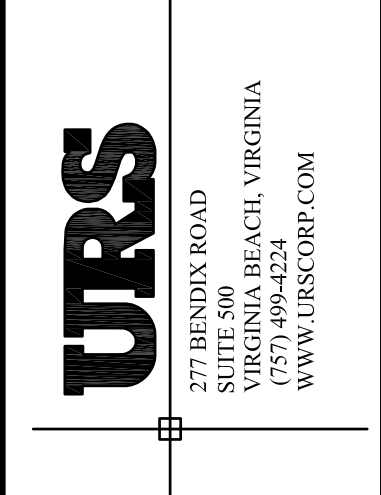
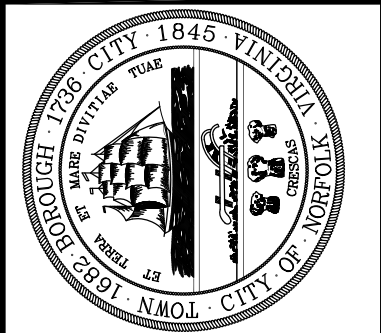
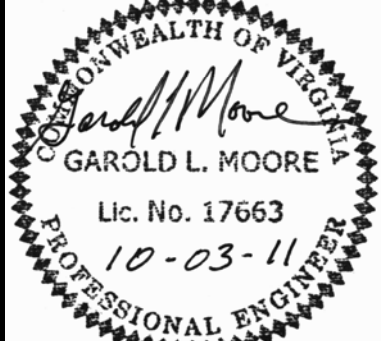
ADA	AMERICAN DISABILITIES ACT	MIN	MINIMUM
APPROX	APPROXIMATE	MPH	MILES PER HOUR
CLR	CLEAR	NIC	NOT IN CONTRACT
CONC	CONCRETE	OC	ON CENTER
CONST	CONSTRUCTION	O/C	ON CENTER
CONT	CONTINUOUS	OD	OUTSIDE DIAMETER
DIA	DIAMETER	PSF	POUNDS PER SQUARE FOOT
EA	EACH	REQ'D	REQUIRED
EJ	EXPANSION JOINT	SEC	SECOND
ELEV	ELEVATION	SIM	SIMILAR
EL	ELEVATION	SLV	SHORT LEG VERTICAL
EXIST	EXISTING	SS	STAINLESS STEEL
GA	GAUGE	STD	STANDARD
GALV	GALVANIZED	T&B	TOP AND BOTTOM
LF	LINEAR FOOT	TOS	TOP OF STEEL
MAX	MAXIMUM	TP	TYPICAL
MG	MATCH GRADE		TEST (INDICATOR) PILE

LIBERTY ENGINEERING, P. C.

4521 E Honeygrove Rd #108
Virginia Beach, VA 23455

STRUCTURAL ENGINEERING

OFFICE REVIEW SUMMARY	
PROJECT MANAGER:	JMH
35%	60%
90%	100%
PROJECT Q/A Q.C.:	JMH
35%	60%
90%	100%
PROJECT ENGINEER:	GLM
35%	60%
90%	100%
DRAFTSMAN:	JDH
DRAFTSMAN:	



NORFOLK PUBLIC WORKS DEPARTMENT
ELIZABETH RIVER TRAIL - PHASE IIIA

STRUCTURAL NOTES

STRUCTURAL NOTES

NORFOLK, VIRGINIA

	PROJECT REVISIONS	DATE
A	ADDENDUM NO. 1	06/23/14

ISSUE DATE:

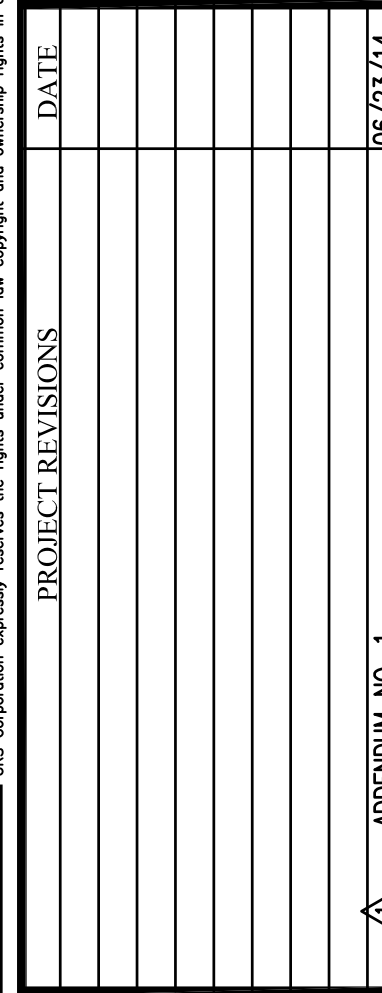
10-03-2011

SHEET

S-1

SHEET 10 OF 15

SCALE: 1/4" = 1'-0"



ISSUE DATE:

10-03-2011

SHEET

S-3

SHEET 12 OF 15

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person without express consent of IRS Commissioner

U.S. GOVERNMENT PRINTING OFFICE: 1970 O 340-100

OFFICE REVIEW SUMMARY
PROJECT MANAGER: IMH

PROJECT MANAGER, JMI

☐ 250% ☐ 600% ☐ 1000%

Y

OFFICE

GA

U

6-C

WE
 100% ☒ 90% ☐ 80% ☐ 70% ☐ 60% ☐ 50% ☐ 40% ☐ 30% ☐ 20% ☐ 10% ☐ 0% ☐

PROJECT Q/A Q/C:

100% ☒ 90% ☐ 80% ☐ 55% ☐
 TH
 L. N
 17
 03
 AL
 45

PROJECT ENGINEER: GLM

3
11
GINT
VIR
100%
90%
60%
35%
100%

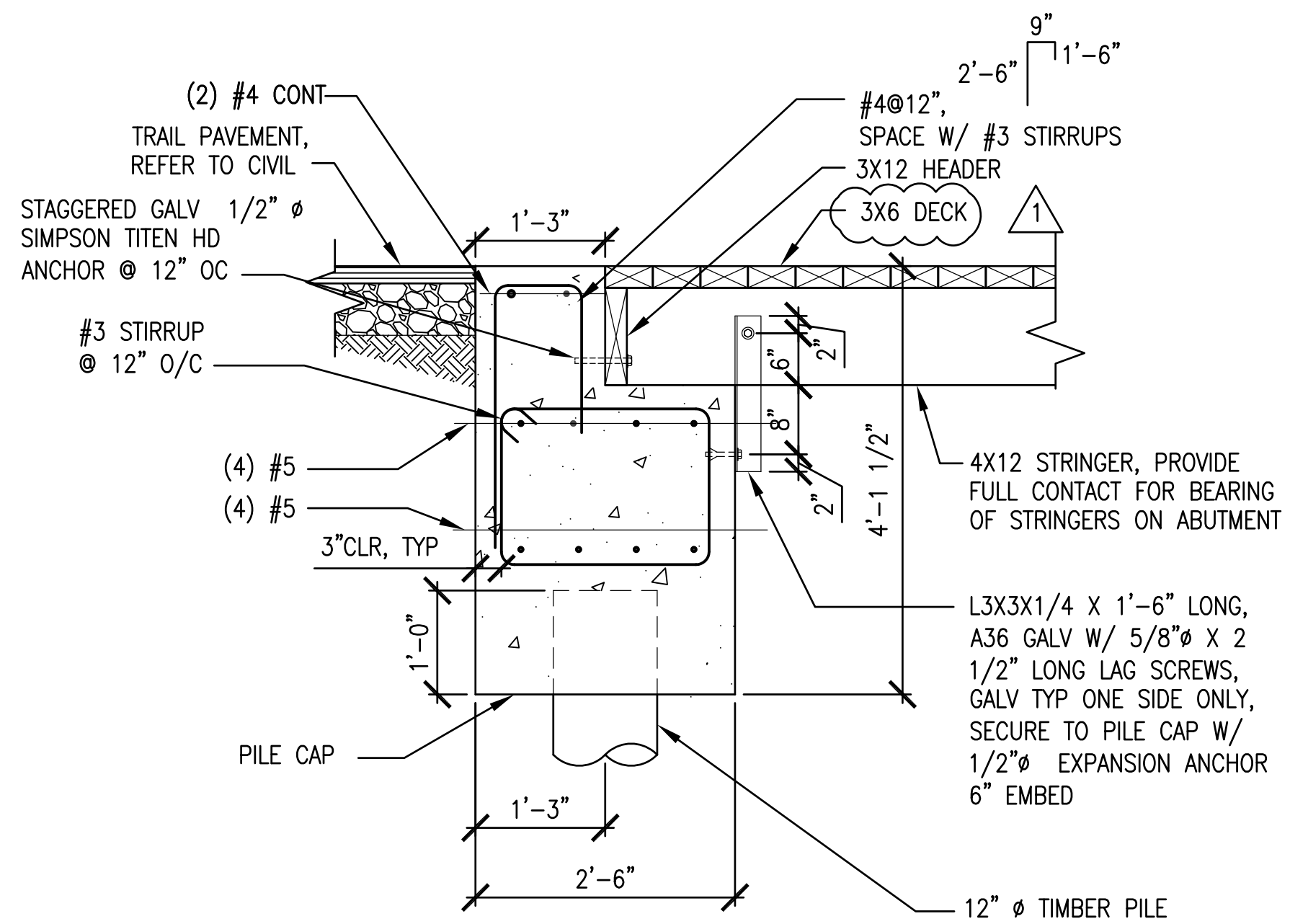
ER
VING
DRAFTSMAN:
JDH

DRAFTSMAN:

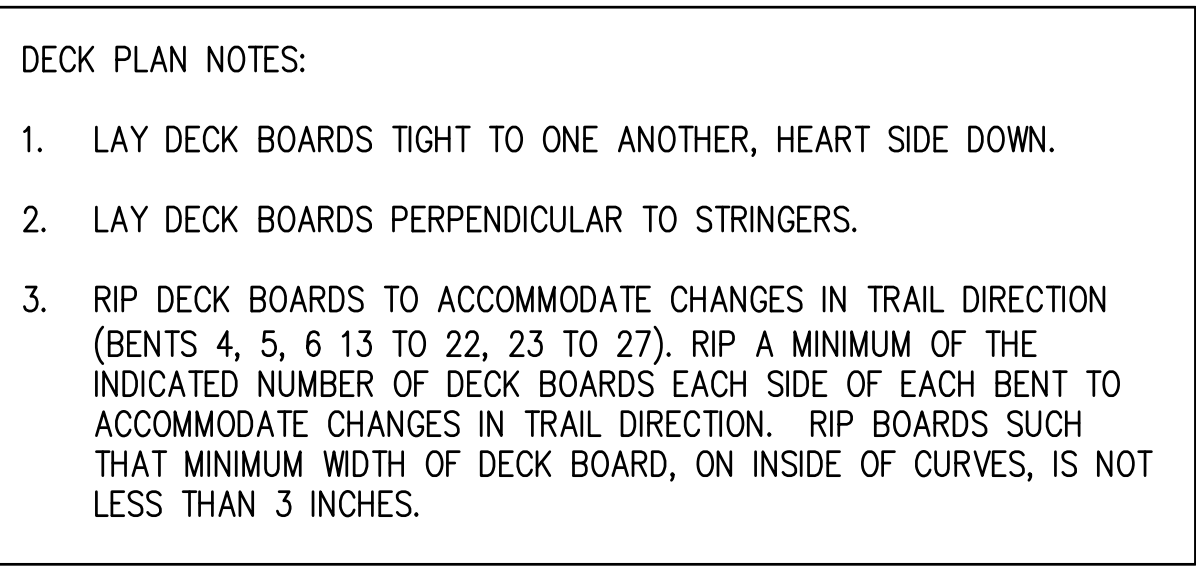
NORFOLK PUBLIC WORKS DEPARTMENT
ELIZABETH RIVER TRAIL - PHASE IIIA

PARTIAL FRAMING PLAN

NOREOI K VIRGINIA



5 SECTION
SCALE: 3/4" = 1'-0"



- 1 APPROXIMATELY 4- 3X6 EACH RIPPED FOR CHANGE IN DIRECTION, TYPICAL AT CORNERS.
- 2 APPROXIMATELY 2 - 3X6 EACH RIPPED FOR CHANGE IN DIRECTION, TYPICAL AT CORNERS.

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STRUCTURAL ENGINEERING

URS

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SECTION AND DETAILS

NORFOLK, VIRGINIA

	PROJECT REVISIONS	DATE
A	ADDENDUM NO. 1	06/23/14

ISSUE DATE:
10-03-2011

SHEET
S-5

SHEET 14 OF 15